Teacher's Scoring Guide

Grade 10

Mathematics
Applied Skills Assessment

Fall 2007

Indiana Statewide Testing for Educational Progress

49935-W

INTRODUCTION

During the fall of 2007, Indiana students in Grades 3 through 10 participated in the administration of *ISTEP+*. The test administered in Grade 10 is the Graduation Qualifying Exam (GQE). This test is also given to other students attempting to qualify for graduation. The GQE Mathematics assessment for *ISTEP+* Fall 2007 consisted of two parts: (1) a multiple-choice section and (2) an applied skills section. For the fall testing, the multiple-choice section, which consisted of multiple-choice and gridded-response questions, was machine-scored. The applied skills section, which consisted of open-ended questions, was hand-scored.

The results of both the multiple-choice section and the applied skills section were returned to the schools in late November 2007. Copies of student responses in the applied skills section were returned to the schools in early December 2007. It is the expectation of the Indiana Department of Education that schools will take this opportunity to invite students and parents to sit down with teachers to discuss the results. To support this endeavor, the Indiana Department of Education has prepared the following *Teacher's Scoring Guide.* The purpose of this guide is to help teachers to:

- understand the methods used to score the *ISTEP+* Fall 2007 Applied Skills Assessment, and
- discuss and interpret these results with students and parents.

In order to use this guide effectively, you will also need the Student Report and a copy of the student's work.

There are two scoring guides for the GQE, English/Language Arts and Mathematics. In this Mathematics guide, you will find:

- an introduction,
- a list of the Mathematics Grade 8 and the Algebra I Indiana Academic Standards,*
- rubrics (scoring rules) used to score the open-ended questions,
- anchor papers that are actual examples of student work (transcribed in this guide for clarity and ease of reading), and
- descriptions of the ways in which the response meets the rubric criteria for each of the score points.

When you review the contents of the scoring guide, keep in mind that this guide is an overview. If you have questions, write via e-mail (istep@doe.state.in.us) or call the Indiana Department of Education at (317) 232-9050.

* The Mathematics standards assessed in the GQE are a combination of the *ISTEP+* Grade 8 Mathematics and the Algebra I Standards that were adopted in September 2000.

INTRODUCTION TO THE MATHEMATICS APPLIED SKILLS ASSESSMENT

The Applied Skills Assessment that students took this past fall in the GQE allowed the students to demonstrate their understanding of Mathematics in a variety of ways, such as applying formulas, explaining a solution, transforming a figure, or interpreting a table or graph.

STRUCTURE

The open-ended questions for the GQE Mathematics assessment were divided into two tests, Test 1 and Test 2. Each test consisted of eight open-ended questions. Students were permitted to use calculators on Test 2 but **not** on Test 1.

SCORING

Each open-ended question was scored according to its own rubric. A rubric is a description of student performance that clearly articulates the requirements for each of the score points. Scoring rubrics are essential because they ensure that all papers are scored objectively. Each rubric for the Mathematics portion of this administration of the *ISTEP+* Fall 2007 GQE assessment has a maximum possible score of two or three score points.

NOTE: Images of the questions and student work have been reduced to fit the format of this guide. As a result, figures and diagrams in measurement questions will appear smaller in this guide than in the actual test book.

Rubrics are established prior to testing to describe the performance criteria for each score point. The performance criteria determine the number of score points possible for each question. This process ensures that all responses are judged objectively.

1. Students should not be penalized for omitting:
   - degree symbols
   - dollar signs ($) or cent signs (¢)
   - zeros for place holders; for example, either 0.75 or .750 could be used
   - labels for word problems; for example, *miles*

     NOTE: Students WILL be penalized for use of incorrect labels.

2. Students should not be penalized for:
   - spelling or grammar errors
   - using abbreviations; for example, *ft* or *feet* would be acceptable

3. Students should be given credit for:
   - entries in the workspace that indicate understanding of a complete process even if the response on the answer line is incorrect (i.e., the student would receive partial credit for questions with rubrics that allow for scoring the work)
   - answers not written on the answer line; for example, an answer could be given in the workspace or in the explanation (however, in some cases, because of the multiple calculations in the workspace, placement of an answer on the answer line is necessary to determine which response the student intended). Students WILL be penalized for incorrect answers written on the answer line even if the correct answer appears in the workspace.

4. Students should be given credit for:
   - bar graphs with bars of any width
   - bar graphs with either horizontal or vertical bars
   - circle graphs with data presented in any order
   - line graphs only if lines connect the points

CONDITION CODES

If a response is unscorable, it is assigned one of the following condition codes:

A Blank/No response/Refusal
B Illegible
C Written predominantly in a language other than English
D Insufficient response/Copied from text

MATHEMATICS GRADE 8
INDIANA ACADEMIC STANDARDS

- **Number Sense**
  Students know the properties of rational and irrational numbers expressed in a variety of forms. They understand and use exponents, powers, and roots.

- **Computation**
  Students compute with rational numbers expressed in a variety of forms. They solve problems involving ratios, proportions, and percentages.

- **Algebra and Functions**
  See the Algebra I Standards on the next page.

- **Geometry**
  Students deepen their understanding of plane and solid geometric shapes and properties by constructing shapes that meet given conditions, by identifying attributes of shapes, and by applying geometric concepts to solve problems.

- **Measurement**
  Students convert between units of measure and use rates and scale factors to solve problems. They compute the perimeter, area, and volume of geometric objects. They investigate how perimeter, area, and volume are affected by changes of scale.

- **Data Analysis and Probability**
  Students collect, organize, represent, and interpret relationships in data sets that have one or more variables. They determine probabilities and use them to make predictions about events.

- **Problem Solving**
  Students make decisions about how to approach problems and communicate their ideas. Students use strategies, skills, and concepts in finding and communicating solutions to problems. Students determine when a solution is complete and reasonable, and move beyond a particular problem by generalizing to other situations.

ALGEBRA I
INDIANA ACADEMIC STANDARDS

- ❑ **Operations with Real Numbers**
  Students simplify and compare expressions. They use rational exponents and simplify square roots.

- ❑ **Linear Equations and Inequalities**
  Students solve linear equations and inequalities in one variable. They solve word problems that involve linear equations, inequalities, or formulas.

- ❑ **Relations and Functions**
  Students sketch and interpret graphs representing given situations. They understand the concept of a function and analyze the graphs of functions.

- ❑ **Graphing Linear Equations and Inequalities**
  Students graph linear equations and inequalities in two variables. They write equations of lines and find and use the slope and *y*-intercept of lines. They use linear equations to model real data.

- ❑ **Pairs of Linear Equations and Inequalities**
  Students solve pairs of linear equations using graphs and using algebra. They solve pairs of linear inequalities using graphs. They solve word problems involving pairs of linear equations.

- ❑ **Polynomials**
  Students add, subtract, multiply, and divide polynomials. They factor quadratics.

- ❑ **Algebraic Fractions**
  Students simplify algebraic ratios and solve algebraic proportions.

- ❑ **Quadratic, Cubic, and Radical Equations**
  Students graph and solve quadratic and radical equations. They graph cubic equations.

- ❑ **Mathematical Reasoning and Problem Solving**
  Students use a variety of strategies to solve problems. Students develop and evaluate mathematical arguments and proofs.

Problem Solving is identified as a Process Skill in the Indiana Academic Standards. To ensure that the *ISTEP+* questions that assess this Process Skill are grade-appropriate and that the questions use skills that are contained in the standards, these questions are developed by including at least two different indicators from Content Skills in addition to the indicator from the Process Skill. Some of the Content Standards included in the Content Skills are Computation, Geometry, and Algebra. The additional indicators may be from the same or different Content Skills.

The Content Skills used for each of the Process Skill questions in the GQE Applied Skills Assessment are shown in the following chart.

PROCESS SKILL QUESTIONS

Question	Process Skills	Content Skills *Item may map to more than one indicator in a standard.*
Test 1		
6	Problem Solving	Computation, Measurement
8	Problem Solving	Number Sense, Algebra and Functions
Test 2		
3	Problem Solving	Algebra and Functions, Measurement
5	Problem Solving	Algebra and Functions, Measurement
8	Problem Solving	Algebra and Functions, Measurement

Test 1—Question 1: Algebra and Functions

1 What are the slope, x-intercept, and y-intercept of the graph of the following equation?

$$y = \frac{1}{2}x - 6$$

Slope _____

x-intercept _____

y-intercept _____

Exemplary Response:

- Slope $= \frac{1}{2}$

AND

- x-intercept $=$ 12 or (12, 0)

AND

- y-intercept $=$ $^{-}6$ or (0, $^{-}6$)

Rubric:

2 points	Exemplary response
1 point	Two correct components
0 points	Other

Test 1—Question 1
Score Point 2

This response matches the exemplary response contained in the rubric. The student shows the correct slope of $\frac{1}{2}$, x-intercept of (12, 0), and y-intercept of (0, $^{-}$6). The response receives a Score Point 2.

SCORE POINT 2

1 What are the slope, x-intercept, and y-intercept of the graph of the following equation?

$$y = \frac{1}{2}x - 6$$

Slope $\frac{1}{2}$

***x*-intercept** (12, 0)

***y*-intercept** (0, -6)

Test 1—Question 1
Score Point 1

This response shows a correct slope and y-intercept. However, the student shows an incorrect x-intercept. Therefore, this response receives a Score Point 1.

SCORE POINT 1

1 What are the slope, x-intercept, and y-intercept of the graph of the following equation?

$$y = \frac{1}{2}x - 6$$

Slope $\frac{1}{2}$

***x*-intercept** $\frac{1}{2}x$

***y*-intercept** -6

SCORE POINT 0

1 What are the slope, x-intercept, and y-intercept of the graph of the following equation?

$$y = \frac{1}{2}x - 6$$

Slope $\frac{1}{2}$ $\frac{6y}{\frac{1}{2}} = \frac{\frac{1}{2}x}{\frac{1}{2}}$

***x*-intercept** 6

***y*-intercept** 3

Test 1—Question 1
Score Point 0

This response shows an incorrect *x*-intercept and an incorrect *y*-intercept. Therefore, this response receives a Score Point 0.

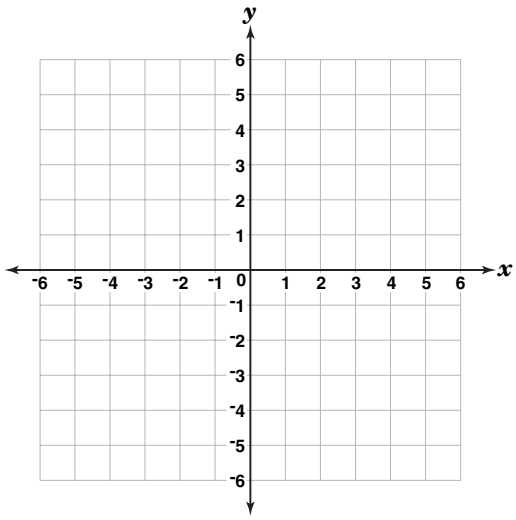
Test 1—Question 2: Algebra and Functions

2 Use your ruler as a straightedge.

Look at the following system of equations.

$$y = 2x + 4$$
$$y = -x + 1$$

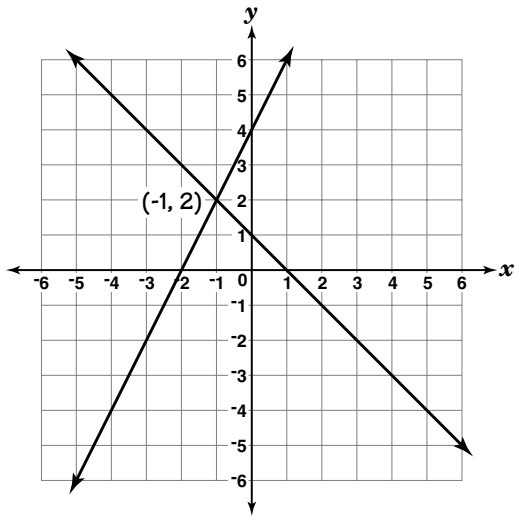
Graph the system of equations on the coordinate plane below.



What is the solution to the system of equations in the graph? Write your answer on the line below.

Answer _____

Exemplary Response:

- 

AND

- $(^{-}1, 2)$

NOTE: Award 1 point for a correct solution based on an incorrect graph.

Rubric:

2 points	Exemplary response
1 point	One correct component
0 points	Other

Test 1—Question 2
Score Point 2

This response matches the exemplary response contained in the rubric. The student shows the correct graph of the system of equations and the correct solution, (⁻1, 2), to the system of equations. The response receives a Score Point 2.

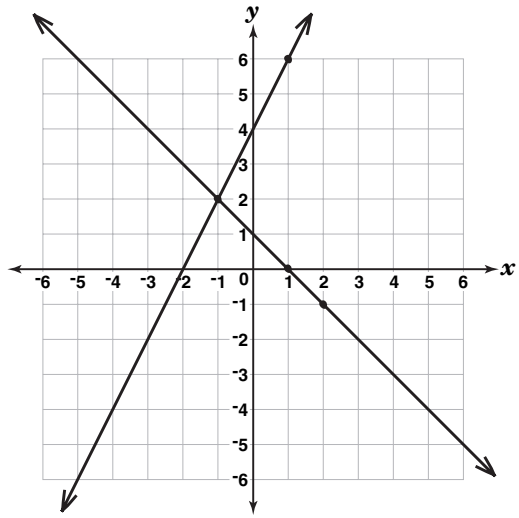
SCORE POINT 2

2 Use your ruler as a straightedge.

Look at the following system of equations.

$$y = 2x + 4$$
$$y = {}^{-}x + 1$$

Graph the system of equations on the coordinate plane below.



What is the solution to the system of equations in the graph? Write your answer on the line below.

Answer (-1, 2)

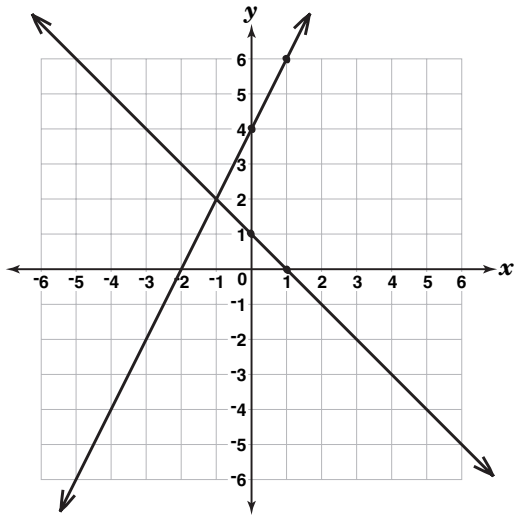
SCORE POINT 1

2 Use your ruler as a straightedge.

Look at the following system of equations.

$$y = 2x + 4$$
$$y = -x + 1$$

Graph the system of equations on the coordinate plane below.



What is the solution to the system of equations in the graph? Write your answer on the line below.

$$\begin{array}{r} y - 2x = 4 \\ y + x = 1 \\ \hline 2y + 2x = 2 \\ 3y = 6 \\ y = 2 \end{array}$$

Answer $y = 2$

Test 1—Question 2
Score Point 1

This response shows a correct graph of the system of equations. However, the student does not show the correct solution to the system of equations. Therefore, this response receives a Score Point 1.

Test 1—Question 2
Score Point 0

This response shows an incorrect graph of the system of equations and an incorrect solution to the system of equations. Therefore, this response receives a Score Point 0.

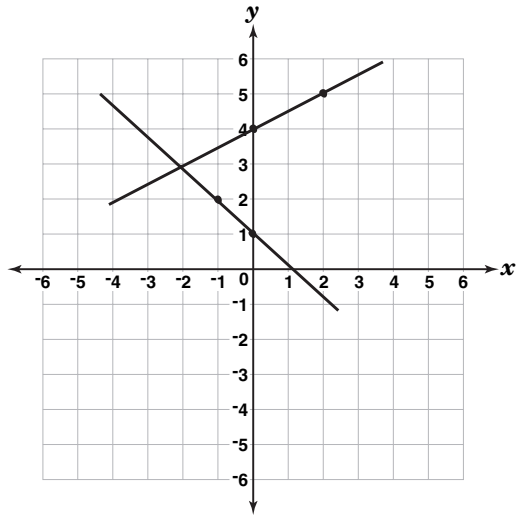
SCORE POINT 0

2 Use your ruler as a straightedge.

Look at the following system of equations.

$$y = 2x + 4$$
$$y = -x + 1$$

Graph the system of equations on the coordinate plane below.

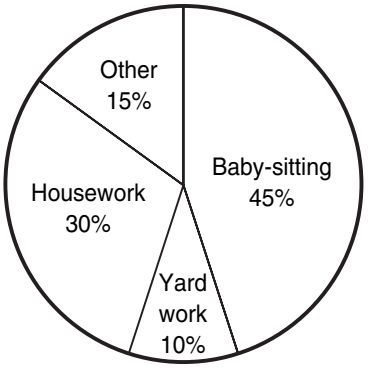


What is the solution to the system of equations in the graph? Write your answer on the line below.

Answer (3, -2)

3 Anna earns extra money by doing tasks for her neighbors after school. The circle graph below shows the percentage of money she earned for doing different tasks last week.

Money Earned



Last week, Anna earned a total of $85.

How much of this money did Anna earn from doing housework and yard work?

Show All Work

Answer $ _____

Exemplary Response:

- $34.00

Sample Process:

- $30\% + 10\% = 40\%$

  $(0.40)(85) = 34$

OR

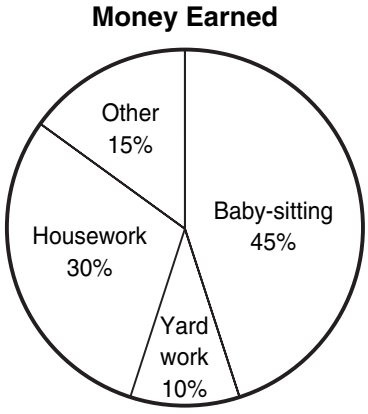
- Other valid process

Rubric:

2 points	Exemplary response
1 point	Correct complete process; error in computation
0 points	Other

SCORE POINT 2

3 Anna earns extra money by doing tasks for her neighbors after school. The circle graph below shows the percentage of money she earned for doing different tasks last week.



Last week, Anna earned a total of $85.

How much of this money did Anna earn from doing housework and yard work?

Show All Work

$\frac{x}{85} = \frac{40}{100}$

$\begin{array}{r} 40 \\ \times\ 85 \\ \hline 200 \\ 3200 \\ \hline 3400 \end{array}$

$100x = 3400$

$100\overline{)3400}$ → 34, $300\downarrow$, 400

Answer $ 34.00

Test 1—Question 3
Score Point 2

This response matches the exemplary response contained in the rubric. The student gives the correct answer of $34.00. The response receives a Score Point 2.

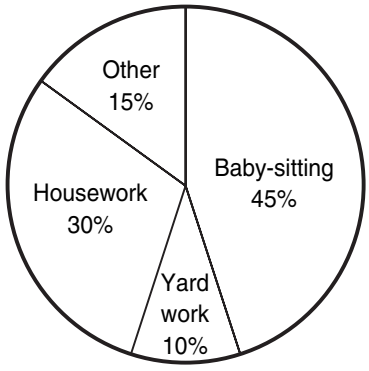
Test 1—Question 3
Score Point 1

This response shows a correct complete process. However, a computational error results in an incorrect answer. The computational error is made when the student multiplies 85 by 40, getting 4,200 instead of 3,400. Therefore, this response receives a Score Point 1.

SCORE POINT 1

3 Anna earns extra money by doing tasks for her neighbors after school. The circle graph below shows the percentage of money she earned for doing different tasks last week.

Money Earned



Last week, Anna earned a total of $85.

How much of this money did Anna earn from doing housework and yard work?

Show All Work

40% OF $85

$\frac{\square}{85} = \frac{40}{100}$

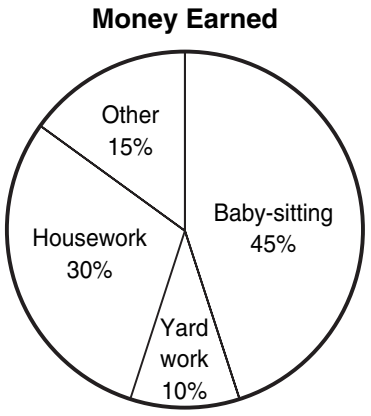
$2\overline{)85}$ → 42.5, -8, 05

$$\begin{array}{r} {}^{2}85 \\ \times\ 40 \\ \hline 4200 \end{array}$$

Answer $ 42.00

SCORE POINT 0

3 Anna earns extra money by doing tasks for her neighbors after school. The circle graph below shows the percentage of money she earned for doing different tasks last week.



Last week, Anna earned a total of $85.

How much of this money did Anna earn from doing housework and yard work?

Show All Work

$$\begin{array}{r} 08.50 \\ .10\overline{)85} \\ -80 \end{array} \qquad \begin{array}{r} 020.25 \\ .30\overline{)85} \\ -60 \\ 25 \end{array}$$

$$\begin{array}{r} 20.25 \\ 8.50 \\ \hline 28.75 \end{array}$$

Answer $ 28.75

Test 1—Question 3
Score Point 0

This response shows an incorrect answer and an incorrect process. Therefore, this response receives a Score Point 0.

Test 1—Question 4: Algebra and Functions

4 Solve for x: $x^2 + x - 6 = 0$

Show All Work

Answer $x =$ _____, or $x =$ _____

Exemplary Response:

- $x = 2$, or $x = {}^{-}3$

Sample Process:

- $x^2 + x - 6 = 0$

  $(x - 2)(x + 3) = 0$

  $x = 2, x = {}^{-}3$

OR

- Other valid process

Rubric:

2 points	Exemplary response
1 point	Correct complete process; error in computation OR Correctly factors and sets each factor equal to zero
0 points	Other

SCORE POINT 2

4 Solve for x: $x^2 + x - 6 = 0$

Show All Work

$(x - 2)(x + 3)$

$x - 2 = 0$ $\quad$ $x + 3 = 0$

$x = 2$ $\quad$ $x = -3$

Answer $x =$ 2, or $x =$ -3

Test 1—Question 4 Score Point 2

This response matches the exemplary response contained in the rubric. The student gives the correct answers of $x = 2$ and $x = -3$. The response receives a Score Point 2.

SCORE POINT 1

4 Solve for x: $x^2 + x - 6 = 0$

Show All Work

$x^2 + x - 6 = 0$

$a = 1 \quad b = 1 \quad c = -6$

$$x = \frac{-1 \pm \sqrt{1^2 - 4 \cdot 1 \cdot -6}}{2 \cdot 1}$$

$$x = \frac{-1 \pm \sqrt{1 + 24}}{2}$$

$$x = \frac{-1 + \sqrt{25}}{2}$$

$$x = \frac{-4}{2}$$

$x = -2$

$$x = \frac{-1 - \sqrt{25}}{2}$$

$$x = \frac{-6}{2}$$

$x = -3$

Answer $x =$ -2, or $x =$ -3

Test 1—Question 4 Score Point 1

This response shows a correct complete process. However, a computational error results in an incorrect answer. The computational error is made when the student adds -1 and $\sqrt{25}$, getting -4 instead of 4. Therefore, this response receives a Score Point 1.

SCORE POINT 0

4 Solve for x: $x^2 + x - 6 = 0$

Show All Work

$x^2 + x - 6 = 0$

$(x + 3)(x - 2)$

Answer $x =$ x + 3, or $x =$ x - 2

Test 1—Question 4 Score Point 0

This response shows an incorrect answer and an incomplete process. The student does not solve each expression by setting it equal to zero. Therefore, this response receives a Score Point 0.

Test 1—Question 5: Algebra and Functions

5 Cookies (c) and bottles of water (w) are sold at a snack bar. The cost of 4 cookies and 2 bottles of water is \$3.90 before tax. The cost of 3 cookies and 3 bottles of water is \$4.05 before tax.

On the lines below, write a system of equations that represents the information.

Equations _____

_____

Use the system of equations to determine the cost of 1 cookie and the cost of 1 bottle of water before tax. Write the answers on the lines below.

Show All Work

Cookie \$ _____

Bottle of water \$ _____

Exemplary Response:

- $4c + 2w = \$3.90$

  $3c + 3w = \$4.05$

OR

- Other valid equations

AND

- Cookie \$0.60

  Bottle of water \$0.75

Sample Process:

- $3(4c + 2w = \$3.90)$

  $^{-}2(3c + 3w = \$4.05)$

$$\begin{aligned} 12c + 6w &= \$11.70 \\ {}^{-}6c - 6w &= {}^{-}\$8.10 \\ \hline 6c &= \$3.60 \\ c &= \$0.60 \end{aligned}$$

$$\begin{aligned} 4(0.60) + 2w &= \$3.90 \\ 2w &= \$1.50 \\ w &= \$0.75 \end{aligned}$$

OR

- Other valid process

NOTE: Award a maximum score of 2 points for an incorrect system solved correctly.

Rubric:

3 points	Exemplary response
2 points	Correct answer line only OR Correct system solved with a computational error OR Correct system with correct answers switched on answer lines
1 point	Incorrect system with correct answers switched on answer lines OR No system, but correct process for solving with a computational error OR Correct system of equations only
0 points	Other

Test 1—Question 5
Score Point 3

This response matches the exemplary response contained in the rubric. The student shows the correct equations and the correct answer of $0.60 for the cost of one cookie and $0.75 for the cost of one bottle of water. The response receives a Score Point 3.

SCORE POINT 3

5 Cookies (c) and bottles of water (w) are sold at a snack bar. The cost of 4 cookies and 2 bottles of water is $3.90 before tax. The cost of 3 cookies and 3 bottles of water is $4.05 before tax.

On the lines below, write a system of equations that represents the information. 4c + 2w = $ 3.90
3c + 3w = $ 4.05

Equations 4c + 2w = 3.90

3c + 3w = 4.05

Use the system of equations to determine the cost of 1 cookie and the cost of 1 bottle of water before tax. Write the answers on the lines below.

Show All Work

3[4c + 2w = 3.90]
2[3c + 3w = 4.05]

^{2}3.90
× 3
11.70

2.40 + 2w = 3.90
2w = 1.50
w = .75

12c + 6w = 11.70
6c + 6w = 8.10
6c = 3.60
c = .60

^{1}4.05
× 2
8.10

11.70
5.10
3.60

Cookie $ 0.60

Bottle of water $ 0.75

SCORE POINT 2

5 Cookies (c) and bottles of water (w) are sold at a snack bar. The cost of 4 cookies and 2 bottles of water is \$3.90 before tax. The cost of 3 cookies and 3 bottles of water is \$4.05 before tax.

On the lines below, write a system of equations that represents the information.

Equations $4c + 2w = 3.90$

$3c + 3w = 4.05$

Use the system of equations to determine the cost of 1 cookie and the cost of 1 bottle of water before tax. Write the answers on the lines below.

Show All Work

x^3 $4c + 2w = 3.90$

x^2 $3c + 3w = 4.05$

$+ 12c + 6w = 11.70$

$+ 6c + 6w = 8.10$

$6c = 3.60$

$c = .60$

$4.05 \times 2 = 8.10$

$3.9 \times 3 = 11.2$

$- 12c - 6w = -11.70$

$12c + 12w = 16.20$

$6w = 4.50$

$w = .90$

$16.2 - 11.7 = 4.5$

Cookie \$ 0.60

Bottle of water \$ 0.90

Test 1—Question 5 Score Point 2

This response shows the correct equations and the correct answer of \$0.60 for the cost of one cookie, but a computational error results in an incorrect answer for the cost of one bottle of water. The computational error is made when the student divides 4.50 by 6, getting 0.90 instead of 0.75. Therefore, this response receives a Score Point 2.

Test 1—Question 5
Score Point 1

This response shows the correct equations. However, the student shows an incorrect process for solving the system of equations and incorrect answers for the cost of one cookie and one bottle of water. Therefore, this response receives a Score Point 1.

SCORE POINT 1

5 Cookies (c) and bottles of water (w) are sold at a snack bar. The cost of 4 cookies and 2 bottles of water is \$3.90 before tax. The cost of 3 cookies and 3 bottles of water is \$4.05 before tax.

On the lines below, write a system of equations that represents the information.

Equations $4c + 2w = 3.90$

$3c + 3w = 4.05$

Use the system of equations to determine the cost of 1 cookie and the cost of 1 bottle of water before tax. Write the answers on the lines below.

Show All Work

$$\begin{aligned} 4c + 2w &= 3.90 \\ 3c + 3w &= 4.05 \\ \hline c + w &= 7.95 \\ c &= 7.95 - w \end{aligned}$$

Cookie \$ $7.95 - w$

Bottle of water \$ $7.95 - c$

SCORE POINT 0

5 Cookies (c) and bottles of water (w) are sold at a snack bar. The cost of 4 cookies and 2 bottles of water is \$3.90 before tax. The cost of 3 cookies and 3 bottles of water is \$4.05 before tax.

On the lines below, write a system of equations that represents the information.

Equations $y = 4c + 2w$

$y = 3c + 3w$

Use the system of equations to determine the cost of 1 cookie and the cost of 1 bottle of water before tax. Write the answers on the lines below.

Show All Work

$$\begin{array}{r} 1.90 \\ 2\overline{)3.90} \end{array}$$

$$\begin{array}{r} 3.90 \\ -\ 1.90 \\ \hline 2.00 \end{array}$$

$$\begin{array}{r} 19 \\ 2\overline{)38} \\ 2\downarrow \\ \hline 18 \end{array}$$

$$\begin{array}{r} .95 \\ 2\overline{)1.90} \end{array}$$

$$\begin{array}{r} .50 \\ 4\overline{)2.00} \end{array}$$

Cookie \$ .50

Bottle of water \$ .95

Test 1—Question 5 Score Point 0

This response shows incorrect equations, an incorrect process for solving the system of equations, and incorrect answers for the cost of one cookie and one bottle of water. Therefore, this response receives a Score Point 0.

Test 1—Question 6: Problem Solving

6 Joe needs 20.58 yards of fencing for the perimeter of his yard. The fencing costs $5.50 per FOOT.

ESTIMATE how much money Joe will spend on fencing.

Show All Work

Estimate $ _____

Exemplary Response:

- Answer in the range of $300 to $378

AND

- Correct complete process

Sample Process:

- Convert yards to feet:

  20.58 yards $\approx$ 20 yards

  20 yards $\times$ 3 feet per yard $=$ 60 feet

  $5.50 $\approx$ $6.00

  Cost $=$ 60 $\times$ 6 $=$ 360

OR

- Other valid process

Rubric:

3 points	Exemplary response
2 points	Correct estimate only OR Correct complete process using estimation; error in computation OR Correct process for determining exact answer
1 point	Exact answer only OR Correct process for converting yards to feet OR Correct process for converting cost per foot to cost per yard
0 points	Other

SCORE POINT 3

6 Joe needs 20.58 yards of fencing for the perimeter of his yard. The fencing costs $5.50 per FOOT.

ESTIMATE how much money Joe will spend on fencing.

Show All Work

1y = 3 ft

20y = 60 ft

60
× 5
300

Estimate $ 300

Test 1—Question 6 Score Point 3

This response matches the exemplary response contained in the rubric. The student shows a correct complete process and the correct estimate of $300. The response receives a Score Point 3.

SCORE POINT 2

6 Joe needs 20.58 yards of fencing for the perimeter of his yard. The fencing costs $5.50 per FOOT.

ESTIMATE how much money Joe will spend on fencing.

Show All Work

3 4
~~2~~ ~~4~~
20.58
× 16.50
0000
102900
1234800
+ 2058000
3395700

1
5.50
× 3
16.50

Estimate $ 339.57

Test 1—Question 6 Score Point 2

This response shows a correct complete process. However, the student finds the exact answer of $339.57 instead of an estimation. Therefore, this response receives a Score Point 2.

Test 1—Question 6
Score Point 1

This response shows an incorrect answer and an incorrect process. However, the student shows a correct process for converting 20.58 yards to 61.74 feet. Therefore, this response receives a Score Point 1.

SCORE POINT 1

6 Joe needs 20.58 yards of fencing for the perimeter of his yard. The fencing costs $5.50 per FOOT.

ESTIMATE how much money Joe will spend on fencing.

Show All Work

$$\begin{array}{r} {\scriptstyle 1\ 2} \\ 20.58 \\ \times \quad 3 \\ \hline 61.74 \end{array}$$

$$\begin{array}{r} 1400 \\ -\ 1100 \\ \hline 5000 \end{array}$$

$$\begin{array}{r} 11.22 \\ 5.50\overline{)6'1.7\,4.0} \\ -550 \\ \hline 674 \\ -550 \\ \hline 1240 \\ -1100 \\ \hline 1400 \end{array}$$

Estimate $ 11.22

Test 1—Question 6
Score Point 0

This response shows an incorrect process resulting in an incorrect answer. Therefore, this response receives a Score Point 0.

SCORE POINT 0

6 Joe needs 20.58 yards of fencing for the perimeter of his yard. The fencing costs $5.50 per FOOT.

ESTIMATE how much money Joe will spend on fencing.

Show All Work

$$\begin{array}{r} 20.58 \\ \times\ 5.50 \\ \hline \$113.19 \end{array}$$

Estimate $ 113.19

Test 1—Question 7: Algebra and Functions

7 

The cost of a medium pizza and the number of toppings on the pizza can be modeled by a linear equation. A medium pizza with no toppings costs \$6.95. Megan orders a medium pizza with three toppings that costs \$11.45.

Write an equation that gives the cost, y, of a medium pizza in terms of the number of toppings, x.

Show All Work

Equation _____

Exemplary Response:

- $y = 1.50x + 6.95$

Sample Process:

- $y = mx + b$

$$m = \frac{11.45 - 6.95}{3 - 0}$$

$$= \frac{4.50}{3}$$

$$= 1.50$$

When $x = 0$, $y = 6.95$

$b = 6.95$

OR

- Other valid process

Rubric:

2 points	Exemplary response
1 point	Correct process for determining the slope
0 points	Other

Test 1—Question 7
Score Point 2

This response matches the exemplary response contained in the rubric. The student shows the correct equation. The response receives a Score Point 2.

SCORE POINT 2

7 The cost of a medium pizza and the number of toppings on the pizza can be modeled by a linear equation. A medium pizza with no toppings costs $6.95. Megan orders a medium pizza with three toppings that costs $11.45.

Write an equation that gives the cost, y, of a medium pizza in terms of the number of toppings, x.

Show All Work

$$\begin{array}{r} {\scriptstyle 01\ 0} \\ 11.145 \\ -\ 6.95 \\ \hline \$4.50 \end{array}$$

$$\begin{array}{r} \$1.50 \text{ per topping} \\ 3\overline{)4.50} \\ 3 \\ \hline 15 \\ 15 \\ \hline 00 \end{array}$$

Equation 6.95 + 1.50x = y

Test 1—Question 7
Score Point 1

This response shows a correct complete process. However, a computational error results in an incorrect equation. The computational error is made when the student divides 4.50 by 3, getting 1.30 instead of 1.50. Therefore, this response receives a Score Point 1.

SCORE POINT 1

7 The cost of a medium pizza and the number of toppings on the pizza can be modeled by a linear equation. A medium pizza with no toppings costs $6.95. Megan orders a medium pizza with three toppings that costs $11.45.

Write an equation that gives the cost, y, of a medium pizza in terms of the number of toppings, x.

Show All Work

$$\begin{array}{r} {\scriptstyle 2\ 1} \\ 11.45 \\ 6.95 \\ \hline 4.50 \end{array}$$

y = 6.95 + 1.30x

$$\begin{array}{r} 1.30 \\ 3\overline{)4.50} \\ -3\downarrow \\ \hline 15 \\ -15 \\ \hline 0 \end{array}$$

Equation y = 6.95 + 1.30x

SCORE POINT 0

7 The cost of a medium pizza and the number of toppings on the pizza can be modeled by a linear equation. A medium pizza with no toppings costs $6.95. Megan orders a medium pizza with three toppings that costs $11.45.

Write an equation that gives the cost, y, of a medium pizza in terms of the number of toppings, x.

Show All Work

$6.95 + 3x = 11.45$

Equation $6.95 + 3x = 11.45$

Test 1—Question 7
Score Point 0

This response shows an incorrect equation and an incomplete process for determining the slope. Therefore, this response receives a Score Point 0.

Test 1—Question 8: Problem Solving

8 Consider the statement below.

For any rational number n, n^2 is always greater than n.

On the line below, give a value of n that is a counterexample to the given statement.

Show All Work

Answer $n =$ _____

Exemplary Response:

- Any number *n* such that $0 \leq n \leq 1$

Sample Process:

- $0.5^2 > 0.5$

  0.25 is not greater than 0.5

OR

- Other valid process

Rubric:

2 points	Exemplary response
1 point	Correct complete process; error in computation
0 points	Other

SCORE POINT 2

8 Consider the statement below.

For any rational number n, n^2 is always greater than n.

On the line below, give a value of n that is a counterexample to the given statement.

Show All Work

n = 0.2

$$\begin{array}{r} 0.2 \\ \times\ 0.2 \\ \hline .04 \end{array}$$

$0.2^2 = 0.04$

$0.04 < 0.2$

$n > n^2$

Answer $n =$ 0.2

Test 1—Question 8 Score Point 2

This response matches the exemplary response contained in the rubric. The student shows a correct answer of 0.2. The response receives a Score Point 2.

SCORE POINT 1

8 Consider the statement below.

For any rational number n, n^2 is always greater than n.

On the line below, give a value of n that is a counterexample to the given statement.

Show All Work

$n > n^2$

$-3 > -3^2$

$-3 > -9$

Answer $n =$ -3

Test 1—Question 8 Score Point 1

This response shows a correct complete process, but a computational error results in an incorrect answer. The computational error is made when the student squares $^{-}3$, getting $^{-}9$ instead of 9. Therefore, this response receives a Score Point 1.

Test 1—Question 8
Score Point 0

This response shows an incorrect process resulting in an incorrect answer. Therefore, this response receives a Score Point 0.

SCORE POINT 0

8 Consider the statement below.

For any rational number n, n^2 is always greater than n.

On the line below, give a value of n that is a counterexample to the given statement.

Show All Work

$n = -2$
$n^2 = 4$

$$\begin{array}{r} -2 \\ \times\ -2 \\ \hline 4 \end{array}$$

Answer $n =$ -2

Test 2—Question 1: Data Analysis and Probability

1 Frank's Deli currently offers a choice of 2 types of bread, 5 types of meat, and 3 types of cheese on the menu. Frank plans to add another type of bread to the menu.

How many MORE combinations will be available after he adds the new type of bread?

Show All Work

Answer _____ combinations

Exemplary Response:

- 15

Sample Process:

- $(5 \times 3 \times 3) - (5 \times 3 \times 2) = 45 - 30 = 15$

OR

- Other valid process

Rubric:

2 points	Exemplary response
1 point	Correct process for determining one of the total number of arrangements
0 points	Other

Test 2—Question 1
Score Point 2

This response matches the exemplary response contained in the rubric. The student shows the correct answer of 15 combinations. The response receives a Score Point 2.

SCORE POINT 2

1 Frank's Deli currently offers a choice of 2 types of bread, 5 types of meat, and 3 types of cheese on the menu. Frank plans to add another type of bread to the menu.

How many MORE combinations will be available after he adds the new type of bread?

Show All Work

2b 5m 3c

2(5)(3) = 30
3(5)(3)

Answer 15 combinations

Test 2—Question 1
Score Point 1

This response shows an incomplete process. However, the student shows a correct process for determining the number of combinations before and after adding a new type of bread. Therefore, this response receives a Score Point 1.

SCORE POINT 1

1 Frank's Deli currently offers a choice of 2 types of bread, 5 types of meat, and 3 types of cheese on the menu. Frank plans to add another type of bread to the menu.

How many MORE combinations will be available after he adds the new type of bread?

Show All Work

2 • 5 • 3 = 30
3 • 5 • 3 = 45

Answer 45 combinations

SCORE POINT 0

1 Frank's Deli currently offers a choice of 2 types of bread, 5 types of meat, and 3 types of cheese on the menu. Frank plans to add another type of bread to the menu.

How many MORE combinations will be available after he adds the new type of bread?

Show All Work

$$\begin{array}{r} +\ 5 \\ +\ 2 \\ +\ 3 \\ +\ 1 \\ \hline 11 \end{array}$$

Answer 11 combinations

Test 2—Question 1
Score Point 0

This response shows an incorrect answer and an incorrect process. Therefore, this response receives a Score Point 0.

Test 2—Question 2: Measurement

2 Jenna covers her circular garden with mulch.

If the area she covers is 78.5 square feet, what is the radius, in feet, of the garden?

Show All Work

Answer _____ feet

Exemplary Response:

- 5 feet

Sample Process:

- $A = 3.14r^2$

$78.5 = 3.14r^2$

$r^2 = \frac{78.5}{3.14}$

$r^2 = 25$

$r = 5$

OR

- Other valid process

Rubric:

2 points	Exemplary response
1 point	Correct complete process; error in computation
0 points	Other

SCORE POINT 2

2 Jenna covers her circular garden with mulch.

If the area she covers is 78.5 square feet, what is the radius, in feet, of the garden?

Show All Work

$$A = \pi r^2$$
$$\frac{78.5}{3.14} = \frac{3.14}{3.14} \cdot r^2$$
$$25 = r^2$$
$$5 = r$$

Answer 5 feet

Test 2—Question 2 Score Point 2

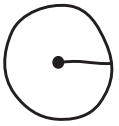
This response matches the exemplary response contained in the rubric. The student shows the correct answer of 5 feet. The response receives a Score Point 2.

SCORE POINT 1

2 Jenna covers her circular garden with mulch.

If the area she covers is 78.5 square feet, what is the radius, in feet, of the garden?

Show All Work



$$A = 78.5 ft^2$$
$$A = \pi r^2$$
$$\frac{78.5}{\pi} = \frac{\pi r^2}{\pi}$$
$$r = \sqrt{2.498732607}$$
$$r = 1.580737994$$

Answer 1.6 feet

Test 2—Question 2 Score Point 1

This response shows a correct complete process, but a computational error results in an incorrect answer. The computational error is made when the student divides 78.5 by π, getting 2.498732607 instead of $\approx$24.987. Therefore, this response receives a Score Point 1.

Test 2—Question 2
Score Point 0

This response shows an incorrect answer and an incorrect process. Therefore, this response receives a Score Point 0.

SCORE POINT 0

2 Jenna covers her circular garden with mulch.

If the area she covers is 78.5 square feet, what is the radius, in feet, of the garden?

Show All Work

$$A = \pi r^2$$
$$78.5 = \pi(r^2)$$
$$3.14$$
$$25^2$$

Answer 625 feet

Test 2—Question 3: Problem Solving

3 Betty uses 1,980 yards of yarn when knitting a basic blanket. She then uses an additional 25 yards of yarn for each inch of the person's height who will receive the blanket.

Write an equation that represents the yards of yarn used (y) in relation to the height (h) of the person receiving the blanket.

Equation _____

Betty used 11,040 FEET of yarn when making a blanket for Connie.

How tall, in INCHES, is Connie?

Show All Work

Answer _____ inches

Exemplary Response:

- $y = 25h + 1{,}980$

AND

- 68 inches

AND

- Correct complete process

Sample Process:

- 11,040 feet = 3,680 yards

$$3{,}680 = 25h + 1{,}980$$
$$25h = 1{,}700$$
$$h = 68$$

OR

- Other valid process

NOTES: Award 2 points for correct process for solving for the height of an incorrect equation.

Award 2 points for correct complete process with an error in computation.

Rubric:

3 points	Exemplary response
2 points	Two correct components
1 point	One correct component
0 points	Other

SCORE POINT 3

3 Betty uses 1,980 yards of yarn when knitting a basic blanket. She then uses an additional 25 yards of yarn for each inch of the person's height who will receive the blanket.

Write an equation that represents the yards of yarn used (y) in relation to the height (h) of the person receiving the blanket.

Equation $y = 1980 + 25h$

Betty used 11,040 FEET of yarn when making a blanket for Connie.

How tall, in INCHES, is Connie?

Show All Work

$$3\overline{)11040}\quad 3680$$

$$\begin{aligned} 3680 &= 1980 + 25h \\ -1980 &\quad -1980 \\ \frac{1700}{25} &= \frac{25h}{25} \\ h &= 68 \end{aligned}$$

Answer 68 inches

Test 2—Question 3
Score Point 3

This response matches the exemplary response contained in the rubric. The student shows a correct equation, a correct complete process, and the correct answer of 68 inches. The response receives a Score Point 3.

Test 2—Question 3
Score Point 2

This response shows a correct complete process and a correct answer of 68 inches. However, the student shows an incorrect equation. Therefore, this response receives a Score Point 2.

SCORE POINT 2

3 Betty uses 1,980 yards of yarn when knitting a basic blanket. She then uses an additional 25 yards of yarn for each inch of the person's height who will receive the blanket.

Write an equation that represents the yards of yarn used (y) in relation to the height (h) of the person receiving the blanket.

Equation y + (25 • H)

Betty used 11,040 FEET of yarn when making a blanket for Connie.

How tall, in INCHES, is Connie?

Show All Work

$$3\overline{)11040} \quad 3680$$

$$\begin{array}{r} 3680 \\ -\ 1980 \\ \hline 1700 \end{array}$$

$$25\overline{)1700} \quad 68$$

$$3\overline{)68} \quad 22$$

$$\begin{array}{r} 22 \\ 12 \\ \hline 264 \end{array}$$

Answer 68 inches

SCORE POINT 1

3 Betty uses 1,980 yards of yarn when knitting a basic blanket. She then uses an additional 25 yards of yarn for each inch of the person's height who will receive the blanket.

Write an equation that represents the yards of yarn used (y) in relation to the height (h) of the person receiving the blanket.

Equation y = 1980 + 25h

Betty used 11,040 FEET of yarn when making a blanket for Connie.

How tall, in INCHES, is Connie?

Show All Work

Answer 92 inches

Test 2—Question 3
Score Point 1

This response shows a correct equation. However, the student shows an incorrect answer of 92 inches and no process is shown. Therefore, this response receives a Score Point 1.

Test 2—Question 3
Score Point 0

This response shows an incorrect equation and an incorrect process resulting in an incorrect answer. Therefore, this response receives a Score Point 0.

SCORE POINT 0

3

Betty uses 1,980 yards of yarn when knitting a basic blanket. She then uses an additional 25 yards of yarn for each inch of the person's height who will receive the blanket.

Write an equation that represents the yards of yarn used (y) in relation to the height (h) of the person receiving the blanket.

1980
\+ 25 each inch of height

Equation 1980 = 25h + y

Betty used 11,040 FEET of yarn when making a blanket for Connie.

How tall, in INCHES, is Connie?

Show All Work

3ft = 36in

$$3\overline{)11040}\quad 3680$$

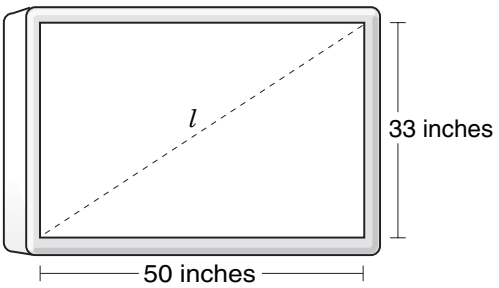
-9↓
20
-18↓
24
-24↓
00

3680

Answer 306 inches

Test 2—Question 4: Geometry

4 The size of a television is determined by the length (l) of the screen's diagonal. The diagram below shows the dimensions of a rectangular television screen.



What is the length (l), in inches, of the screen's diagonal?

Show All Work

Answer _____ inches

Exemplary Response:

- 59.908 or $\sqrt{3,589}$ inches

Sample Process:

- $l^2 = 33^2 + 50^2$
  $= 1,089 + 2,500$
  $= 3,589$
  $l = \sqrt{3,589}$
  ≈ 59.908

OR

- Other valid process

Rubric:

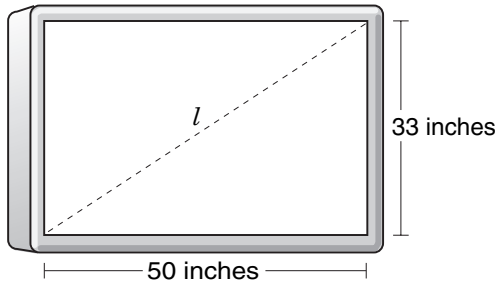
2 points	Exemplary response
1 point	Correct complete process; error in computation
0 points	Other

Test 2—Question 4
Score Point 2

This response matches the exemplary response contained in the rubric. The student shows the correct answer of 59.9082632 inches. The response receives a Score Point 2.

SCORE POINT 2

4 The size of a television is determined by the length (l) of the screen's diagonal. The diagram below shows the dimensions of a rectangular television screen.



What is the length (l), in inches, of the screen's diagonal?

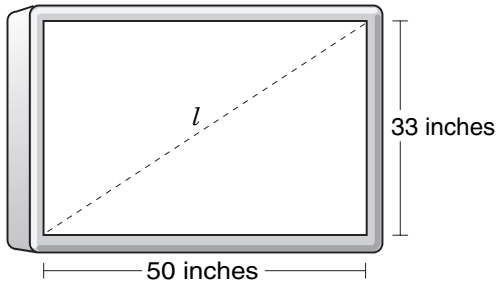
Show All Work

$$50^2 + 33^2 = l^2$$
$$2500 + 1089 = l^2$$
$$\sqrt{3589}$$

Answer 59.9082632 inches

SCORE POINT 1

4 The size of a television is determined by the length (l) of the screen's diagonal. The diagram below shows the dimensions of a rectangular television screen.



What is the length (l), in inches, of the screen's diagonal?

Show All Work

$$50^2 + 33^2 = C^2$$
$$2500 + 1089 = C^2$$
$$4678 = C^2$$
$$68.4 = C$$

Answer 68.4 inches

Test 2—Question 4
Score Point 1

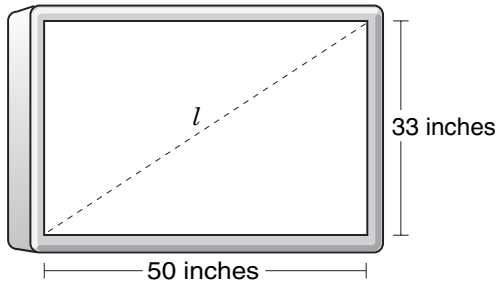
This response shows a correct complete process. However, a computational error results in an incorrect answer. The computational error is made when the student adds 2,500 and 1,089, getting 4,678 instead of 3,589. Therefore, this response receives a Score Point 1.

Test 2—Question 4
Score Point 0

This response shows an incorrect answer and an incorrect process. Therefore, this response receives a Score Point 0.

SCORE POINT 0

4 The size of a television is determined by the length (l) of the screen's diagonal. The diagram below shows the dimensions of a rectangular television screen.



What is the length (l), in inches, of the screen's diagonal?

Show All Work

$$\sqrt{33^2 + 50^2 = C^2}$$
$$33 + 50 = C$$
$$83 = C$$

Answer 83 inches

Test 2—Question 5: Problem Solving

5 Levi takes a taxi 13 miles to the airport. The taxi charges $1.50 per mile plus $0.20 per minute.

If the taxi travels at an average rate of 30 miles per hour, how much will the ride to the airport cost?

Show All Work

Answer $ _____

Exemplary Response:

- $24.70

AND

- Correct complete process

Sample Process:

- Cost for miles $= 13 \times 1.5 = 19.5$

  If driving 30 mph, then that is the same as 0.5 mile per minute, so 13 miles would equal 26 minutes.

  Total cost

  $= 19.5 + 0.2(26)$

  $= 19.5 + 5.2$

  $= 24.7$

OR

- Other valid process

Rubric:

3 points	Exemplary response
2 points	Correct answer only OR Correct process for determining the cost for distance and time
1 point	Correct process for determining the cost for distance OR Correct process for determining the cost for time
0 points	Other

Test 2—Question 5
Score Point 3

This response matches the exemplary response contained in the rubric. The student shows a correct complete process and the correct answer of $24.70. The response receives a Score Point 3.

SCORE POINT 3

5 Levi takes a taxi 13 miles to the airport. The taxi charges $1.50 per mile plus $0.20 per minute.

If the taxi travels at an average rate of 30 miles per hour, how much will the ride to the airport cost?

Show All Work

x = min
m = miles

1.50m + .20x
1.50(13) + .2x
1.50(13) + .2(26)
19.50 + 5.20
= 24.7

$\frac{30mi}{60} = \frac{13mi}{x}$

$\frac{780}{30} = \frac{30x}{30}$

$x = 26$

Answer $ 24.70

Test 2—Question 5
Score Point 2

This response shows a correct process for determining the cost for distance and the cost for time. However, a computational error results in an incorrect answer. The computational error is made when the student adds 19.5 and 5.2, getting 25.7 instead of 24.7. Therefore, this response receives a Score Point 2.

SCORE POINT 2

5 Levi takes a taxi 13 miles to the airport. The taxi charges $1.50 per mile plus $0.20 per minute.

If the taxi travels at an average rate of 30 miles per hour, how much will the ride to the airport cost?

Show All Work

$d = r \cdot t$

$\frac{13}{30} = \frac{30x}{30}$

1 mile in 2 min

13
× 2
26 min

1.50
× 13
19.5

× .20
5.2

11
19.5
+ 5.2
25.7

Answer $ 25.70

SCORE POINT 1

5 Levi takes a taxi 13 miles to the airport. The taxi charges $1.50 per mile plus $0.20 per minute.

If the taxi travels at an average rate of 30 miles per hour, how much will the ride to the airport cost?

Show All Work

$$\begin{array}{r} 1.50 \\ \times\ 13 \\ \hline 19.5 \end{array}$$

$$30\overline{)13} \quad .43$$

$$\begin{array}{r} 19.50 \\ +\ .43 \\ \hline 19.93 \end{array}$$

Answer $ 19.93

Test 2—Question 5
Score Point 1

This response shows an incorrect process resulting in an incorrect answer. However, the student shows a correct process for determining the cost, $19.50, for distance. Therefore, this response receives a Score Point 1.

SCORE POINT 0

5 Levi takes a taxi 13 miles to the airport. The taxi charges $1.50 per mile plus $0.20 per minute.

If the taxi travels at an average rate of 30 miles per hour, how much will the ride to the airport cost?

Show All Work

19.5

$d = rt$

$\frac{13}{13} = \frac{30t}{13}$

2.3

2m 20s

Answer $ 19.96

Test 2—Question 5
Score Point 0

This response shows an incorrect process resulting in an incorrect answer. Therefore, this response receives a Score Point 0.

Test 2—Question 6: Algebra and Functions

6 At a garden center, Pablo buys m bags of mulch for \$4.49 per bag and r bags of rock for \$5.79 per bag. The total cost is \$105.40 before tax.

Write an equation that represents this information.

Equation _____

Pablo bought 8 bags of mulch. How many bags of rock did he buy?

Answer _____ bags of rock

Exemplary Response:

- $4.49m + 5.79r = 105.40$

OR

- Other valid equation

AND

- 12 bags of rock

NOTE: Award one point for a correct answer based on an incorrect equation.

Rubric:

2 points	Exemplary response
1 point	One correct component
0 points	Other

SCORE POINT 2

6 At a garden center, Pablo buys m bags of mulch for \$4.49 per bag and r bags of rock for \$5.79 per bag. The total cost is \$105.40 before tax.

Write an equation that represents this information.

Equation $4.49m + 5.79r = 105.40$

Pablo bought 8 bags of mulch. How many bags of rock did he buy?

Answer 12 bags of rock

$4.49(8) + 5.79r = 105.40$

-35.92

$35.92 + 5.79r = 105.40 - 35.92$

$\frac{5.79r}{5.79} = \frac{69.48}{5.79}$

$r = 12$

Test 2—Question 6
Score Point 2

This response matches the exemplary response contained in the rubric. The student shows a correct equation and a correct answer of 12 bags of rock. The response receives a Score Point 2.

Test 2—Question 6
Score Point 1

This response shows an incorrect equation. However, the student gives the correct answer of 12 bags of rock. Therefore, this response receives a Score Point 1.

SCORE POINT 1

6 At a garden center, Pablo buys m bags of mulch for $4.49 per bag and r bags of rock for $5.79 per bag. The total cost is $105.40 before tax.

Write an equation that represents this information.

Equation (E • m) • (E • m) = 105.40

Pablo bought 8 bags of mulch. How many bags of rock did he buy?

Answer 12 bags of rock

5.79 ⟌69.48

8 × 4.49

35.92

Test 2—Question 6
Score Point 0

This response shows an incorrect equation and an incorrect answer. Therefore, this response receives a Score Point 0.

SCORE POINT 0

6 At a garden center, Pablo buys m bags of mulch for $4.49 per bag and r bags of rock for $5.79 per bag. The total cost is $105.40 before tax.

Write an equation that represents this information.

Equation 4.49 + r

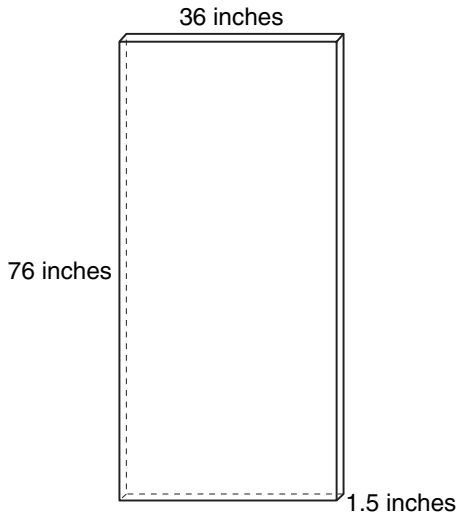
Pablo bought 8 bags of mulch. How many bags of rock did he buy?

$69.48

Answer $69.48 bags of rock

Test 2—Question 7: Measurement

7 A diagram of a door is shown below.



What is the total surface area, in square inches, of the door?

Show All Work

Answer _____ square inches

Exemplary Response:

- 5,808 square inches

Sample Process:

- Surface area $=$
  $(2 \times 36 \times 76) +$
  $(2 \times 36 \times 1.5) +$
  $(2 \times 76 \times 1.5)$
  $= 5{,}472 + 108 + 228$
  $= 5{,}808$

OR

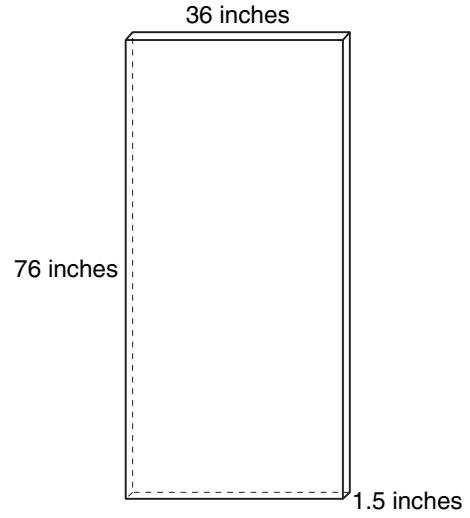
- Other valid process

Rubric:

2 points	Exemplary response
1 point	Correct complete process; error in computation OR Correct process for determining the area of each face
0 points	Other

SCORE POINT 2

7 A diagram of a door is shown below.



What is the total surface area, in square inches, of the door?

Show All Work

SA = 2lw + 2hw + 2lh
SA = 108 + 228 + 5472
SA = 5808

2lw = 2 × 1.5 × 36 = 108
2hw = 2 × 76 × 1.5 = 228
2lh = 2 × 36 × 76 = 5472

Answer 5808 square inches

Test 2—Question 7
Score Point 2

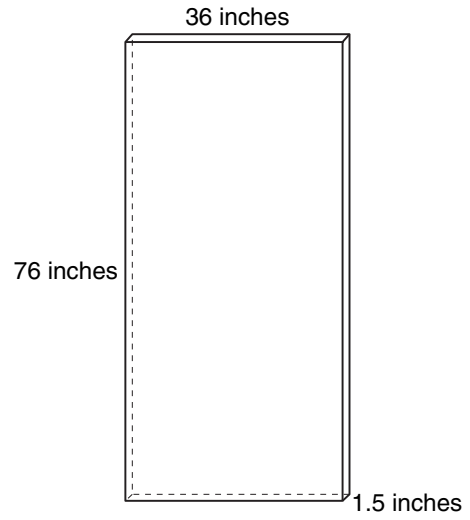
This response matches the exemplary response contained in the rubric. The student shows the correct answer of 5,808 square inches. The response receives a Score Point 2.

Test 2—Question 7
Score Point 1

This response shows a correct complete process. However, a computational error results in an incorrect answer. The computational error is made when the student multiplies 76 by 1.5, getting 144 instead of 114. Therefore, this response receives a Score Point 1.

SCORE POINT 1

7 A diagram of a door is shown below.



What is the total surface area, in square inches, of the door?

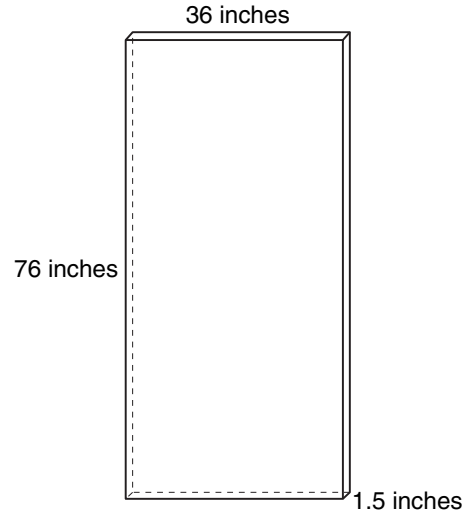
Show All Work

$SA = 2lw + 2hw + 2lh$
$= 2(36 \cdot 1.5) + 2(76 \cdot 1.5) + 2(36 \cdot 76)$
$= 2 \cdot 54 + 2 \cdot 144 + 2 \cdot 2736$
$= 5868$

Answer 5868 square inches

SCORE POINT 0

7 A diagram of a door is shown below.



What is the total surface area, in square inches, of the door?

Show All Work

$$\begin{array}{r} 36 \\ \times\ 76 \\ \hline 2736 \\ \times\ \ 1.5 \\ \hline {\scriptstyle 1}\ \\ 4104 \end{array}$$

Answer 4104^2 square inches

Test 2—Question 7
Score Point 0

This response shows an incorrect answer and an incorrect process. Therefore, this response receives a Score Point 0.

Test 2—Question 8: Problem Solving

8 The length of a piano performance (P), in minutes, can be determined using the formula

$$P = \frac{nt}{M}$$

where n = number of beats per bar, t = number of bars in the music, and M = metronome marking.

Beth and Angie are performing piano solos at a concert. Beth's solo has 4 beats per bar and a metronome marking of 80. The ratio of the number of bars in Beth's solo to the number of bars in Angie's solo is 4 to 5.

If Angie's solo has 90 bars, what is the length, in minutes, of Beth's solo?

Show All Work

Answer _____ minutes

Exemplary Response:

- 3.6 minutes

AND

- Correct complete process

Sample Process:

- Let b = number of bars in Beth's solo:

$$\frac{b}{90} = \frac{4}{5}$$

$$b = 72 \text{ bars}$$

$$P = \frac{4 \times 72}{80}$$

$$P = 3.6 \text{ minutes}$$

OR

- Other valid process

Rubric:

3 points	Exemplary response
2 points	Correct answer only OR Correct complete process; error in computation
1 point	Correct process for determining the number of bars in Beth's solo
0 points	Other

Test 2—Question 8
Score Point 3

This response matches the exemplary response contained in the rubric. The student shows a correct complete process and the correct answer of 3.6 minutes. The response receives a Score Point 3.

SCORE POINT 3

8 The length of a piano performance (P), in minutes, can be determined using the formula

$$P = \frac{nt}{M}$$

where n = number of beats per bar, t = number of bars in the music, and M = metronome marking.

Beth and Angie are performing piano solos at a concert. Beth's solo has 4 beats per bar and a metronome marking of 80. The ratio of the number of bars in Beth's solo to the number of bars in Angie's solo is 4 to 5.

If Angie's solo has 90 bars, what is the length, in minutes, of Beth's solo?

Show All Work

beth / Angie $\frac{4}{5} = \frac{x}{90}$

$\frac{5x}{5} = \frac{360}{5}$

$x = 72$

beth = 72 bors
beth = 18 beats

$P = \frac{4(72)}{80}$

$P = \frac{288}{80}$

$P = 3.6$

Answer 3.6 minutes

SCORE POINT 2

8 The length of a piano performance (P), in minutes, can be determined using the formula

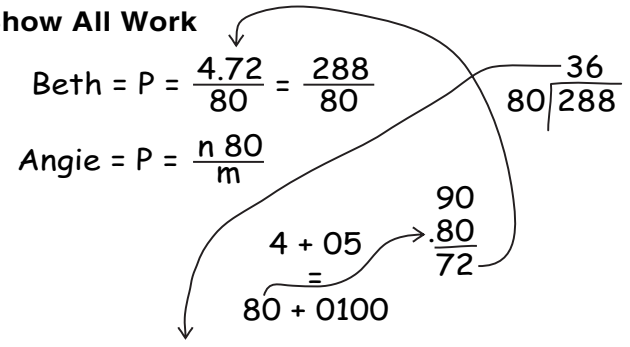
$$P = \frac{nt}{M}$$

where n = number of beats per bar, t = number of bars in the music, and M = metronome marking.

Beth and Angie are performing piano solos at a concert. Beth's solo has 4 beats per bar and a metronome marking of 80. The ratio of the number of bars in Beth's solo to the number of bars in Angie's solo is 4 to 5.

If Angie's solo has 90 bars, what is the length, in minutes, of Beth's solo?

Show All Work



Answer 36 minutes

Test 2—Question 8 Score Point 2

This response shows a correct complete process, but a computational error results in an incorrect answer. The computational error is made when the student divides 288 by 80, getting 36 instead of 3.6. Therefore, this response receives a Score Point 2.

Test 2—Question 8
Score Point 1

This response shows an incorrect answer on the answer line. However, the student shows a correct process for determining the number of bars, 72, in Beth's solo. Therefore, this response receives a Score Point 1.

SCORE POINT 1

8 The length of a piano performance (P), in minutes, can be determined using the formula

$$P = \frac{nt}{M}$$

where n = number of beats per bar, t = number of bars in the music, and M = metronome marking.

Beth and Angie are performing piano solos at a concert. Beth's solo has 4 beats per bar and a metronome marking of 80. The ratio of the number of bars in Beth's solo to the number of bars in Angie's solo is 4 to 5.

If Angie's solo has 90 bars, what is the length, in minutes, of Beth's solo?

Show All Work

$P = \frac{4(t)}{80}$

$P = \frac{n(90)}{}$

$\frac{4}{x} = \frac{5}{90}$

$5x = 360$

$x = 72$

Answer 72 minutes

SCORE POINT 0

8 The length of a piano performance (P), in minutes, can be determined using the formula

$$P = \frac{nt}{M}$$

where n = number of beats per bar, t = number of bars in the music, and M = metronome marking.

Beth and Angie are performing piano solos at a concert. Beth's solo has 4 beats per bar and a metronome marking of 80. The ratio of the number of bars in Beth's solo to the number of bars in Angie's solo is 4 to 5.

If Angie's solo has 90 bars, what is the length, in minutes, of Beth's solo?

Show All Work

$$P = \frac{4.80}{80}$$

Answer 45 minutes

Test 2—Question 8
Score Point 0

This response shows an incorrect answer and an incorrect process. Therefore, this response receives a Score Point 0.

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